Applicant: Jerry Harris Serial No.: 09/514,748

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## Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

## Listing of Claims:

1. (Previously Presented) A method for processing a digital image comprising:

generating a set of original subpixel data values for a first pixel of a digital image as a function of pixel data of the digital image;

mapping each of the original subpixel data values to a new subpixel data value, each new subpixel data value being determined solely by the corresponding original subpixel data value; and

adjusting the first pixel of the digital image according to the new subpixel data values.

- 2. (Previously Presented) The method of claim 1, wherein mapping the original subpixel data includes processing each of the original subpixel data values with a lookup table to generate the new subpixel data values.
- 3. (Previously Presented) The method of claim 2, wherein processing each of the original subpixel data values with the lookup table includes interpolating between elements of the lookup table according to a fractional component of the original subpixel data value.
- 4. (Original) The method of claim 2, wherein the lookup table stores a plurality of addressable replacement values, wherein each replacement value includes an integer component and a fractional component.

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- 5. (Previously Presented) The method of claim 1, wherein mapping the original subpixel data values includes mapping the original subpixel data values according to a user-defined curve for shaping the digital image.
- 6. (Original) The method of claim 1 and further including applying an image processing operation to the new subpixel data.
- 7. (Original) The method of claim 6, wherein the image processing operation is a shading operation.
- 8. (Original) The method of claim 6, wherein applying the image processing operation includes iteratively processing the new subpixel data values.
- 9. (Previously Presented) The method of claim 1, wherein the set of original subpixel data values are generated using pixel data produced by an image processing operation, wherein the pixel data has an integer component and a fractional component.
- 10. (Previously Presented) The method of claim 1, wherein generating the set of original subpixel data values includes generating at least one two-dimensional array of original subpixel data values.
- 11. (Original) The method of claim 10, wherein generating at least one two-dimensional array includes generating an array having three columns and three rows.
- 12. (Original) The method of claim 10, wherein generating at least one two-dimensional array includes generating a plurality of subpixel arrays for each pixel and adjacent pixels of the digital image.

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13. (Previously Presented) The method of claim 1, wherein generating the set of original subpixel data values includes:

generating a plurality of sets of subpixel data values;

selecting one new subpixel data value from each set and applying an image-processing operation to the selected new subpixel data values; and

repeating iteratively the selection of the new subpixel data values from the sets and the application of the image-processing operation until all of the new subpixel data values have been processed.

- 14. (Original) The method of claim 1, wherein adjusting pixel data of the digital image includes: updating the pixel data with an average of the new subpixel data values.
- 15. (Original) The method of claim 1, wherein the average of the new subpixel data values is a weighted average.
- 16. (Original) The method of claim 1, and further including examining the pixel data values to determine whether to generate subpixel data values for a corresponding pixel data value.
- 17. (Currently Amended) The method of claim 1, wherein adjusting pixel data of the digital image includes updating the pixel data with an integer value calculated from the new subpixel data values.
- 18. (Previously Presented) The method of claim 1, wherein the digital image is a digital matte and the method reduces aliasing artifacts when shaping the digital matte by generating the set of original subpixel data values as an array of subpixel data and mapping the original subpixel data values to the new subpixel data values by interpolating between elements of a lookup table representing a user-defined curve.

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19. (Currently Amended) A computer program product, tangibly stored on embodied in a computer-readable medium, for processing a digital image, the product program comprising instructions operable to cause a programmable processor computer to:

generate a set of original subpixel data values for a first pixel of a digital image as a function of pixel data of the digital image;

map each of the original subpixel data values to a new subpixel data value, each new subpixel data value being determined solely by the corresponding original subpixel data value; and

adjust the first pixel of the digital image according to the new subpixel data values.

- 20. (Currently Amended) The computer program product of claim 19, wherein the instructions to map the programmable processor maps the original subpixel data values to new subpixel data values by processing are operable to process each of the original subpixel data values with a lookup table representing a user-defined curve.
- 21. (Currently Amended) The computer program product of claim 20, wherein the <u>instructions</u> to map the original subpixel data values to new subpixel data values are operable to process programmable processes each of the original subpixel data values with the lookup table by interpolating between elements of the lookup table according to a fractional component of the original subpixel data value.
- 22. (Currently Amended) The computer program product of claim 19 and further including instructions operable to cause the programmable processes to apply an image processing operation to the new subpixel data.
- 23. (Currently Amended) The computer program product of claim 22, wherein the <u>instructions</u> are operable to programmable processes iteratively apply applies the image processing operation to the new subpixel data values.

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24. (Currently Amended) The computer program product of claim 19, wherein the <u>instructions</u> are operable to generate programmable processor generates the set of original subpixel data values by:

generating a plurality of sets of subpixel data values;

selecting one new subpixel data value from each set and applying an image-processing operation to the selected new subpixel data values; and

repeating iteratively the selection of the new subpixel data values from the sets and the application of the image-processing operation until all of the new subpixel data values have been processed.

25. (Currently Amended) The computer program product of claim 19, wherein the <u>instructions</u> are operable to reduce programmable processor reduces aliasing artifacts in the digital image by generating the set of subpixel data values as an array of subpixel data and mapping the original subpixel data values to the new subpixel data values by interpolating between elements of a lookup table representing a user-defined curve.

## 26. (Currently Amended) A system comprising:

an operating environment provided by a computer; and

a computer program executing within the operating environment to reduce aliasing artifacts when shaping a digital image, wherein the computer program generates a set of original subpixel data values for a first pixel of a digital image as a function of pixel data of the digital image, and further wherein the computer program shapes the digital image by mapping each of the original subpixel data values to a new subpixel data value, each new subpixel data value being determined solely by the corresponding original subpixel data value and adjust the first pixel of the digital image according to the new subpixel data values.

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27. (Previously Presented) The system of claim 26, wherein the computer program maps the original subpixel data values to new subpixel data values by processing each of the original subpixel data values with a lookup table representing a user-defined curve.

- 28. (Previously Presented) The system of claim 27, wherein the computer program processes each of the original subpixel data values with the lookup table by interpolating between elements of the lookup table according to a fractional component of the original subpixel data value.
- 29. (Original) The system of claim 26, wherein the computer program applies an image processing operation to the new subpixel data.
- 30. (Original) The system of claim 26, wherein the digital image is a digital matte.
- 31. (Withdrawn) A method of creating an image-based effect from a digital matte, comprising: generating a digital matte from an image; blurring the digital matte; shaping the blurred matte using a predefined shaping transformation; and using the shaped blurred matte to create the effect.
- 32. (Withdrawn) The method of claim 31, wherein:

blurring the digital matte comprises generating high-resolution values for the pixels of the blurred matte, high-resolution values being values having a fractional component;

shaping the blurred matte comprises transforming a region of interest of the matte pixels from original values to new values by:

forming a subpixel patch for each matte pixel to create subpixels for each matte pixel;

applying the shaping transformation to each of the subpixels created for each matte pixel; and

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calculating a new value for each matte pixel in the region from the transformed values of the corresponding subpixels.

## 33. (Withdrawn) The method of claim 32, wherein:

using the matte comprises applying an image processing operating to the subpixels of the region after applying the shaping transformation and before calculating new values for matte pixels.

34. (Withdrawn) The method of claim 33, wherein:

the high-resolution values are an 8.8 result for each pixel of the blurred matte; the subpixel patch a particular pixel is a 3x3 patch composed of bilinearly interpolated values calculated from values of pixels neighboring the particular pixel; and the new values are calculated as an unweighted average of the values of the

corresponding subpixels after the shaping transformation has been applied.

35. (Withdrawn) The method of claim 31, wherein:

the predefined shaping transformation is implemented by a lookup table; and the act of shaping the blurred matte is performed by applying the lookup table to the blurred matte.

36. (Withdrawn) The method of claim 31, wherein:

the predefined shaping transformation is defined by a user interacting with a graphical user interface to specify a curve defining the transformation.

- 37. (Withdrawn) The method of claim 31, wherein: the digital matte is small.
- 38. (New) The computer program of claim 19, wherein the instructions to map the original subpixel data values to new subpixel data values are operable to map the original subpixel data values according to a user-defined curve for shaping the digital image.

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39. (New) The computer program of claim 19, wherein the instructions to generate the set of original subpixel data values are operable to generate at least one two-dimensional array of original subpixel data values.

- 40. (New) The computer program of claim 39, wherein the instructions to generate at least one two-dimensional array are operable to generate a plurality of subpixel arrays for each pixel and adjacent pixels of the digital image.
- 41. (New) The computer program product of claim 19, wherein the instructions to adjust pixel data of the digital image are operable to update the pixel data with an average of the new subpixel data values.
- 42. (New) The computer program of claim 19 and further including instructions operable to examine the pixel data values to determine whether to generate subpixel data values for a corresponding pixel data value.
- 43. (New) The computer program of claim 19, wherein the instructions to pixel data of the digital image are operable to update the pixel data with an integer value calculated from the new subpixel data values.